JOURNAL OF FORENSIC SCIENCES

J Forensic S
doi: 10.1111/1556-4029.13880
Available online at: onlinelibrary.wiley.com

CASE REPORT

PSYCHIATRY & BEHAVIORAL SCIENCE

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Self-harm Risk Among Adolescents and the Phenomenon of the "Blue Whale Challenge": Case Series and Review of the Literature*

ABSTRACT: The "Blue Whale Challenge" is a dangerous Internet phenomenon. As per media reports, it involves a series of life-threatening tasks imposed by a "curator" to "players," who must fulfill the whole list, and it ends with the suicide of the player. The authors report the data of five suspected cases of "Blue Whales" managed from January 2016 to December 2017 by the staff of a unit (the "Bambi Unit" of the Pediatric Hospital "Regina Margherita" of Turin, Italy) that is dedicated to the evaluation of suspected abused children. Then, they analyzed this data in the light of the literature regarding self-harm. This comparison highlights the role of the Internet in the spreading of self-harm behavior among vulnerable adolescents who are characterized by epidemiological, psychological, psychiatric, social, and cultural risk factors. In conclusion, the authors suggest a multidisciplinary and specialized approach in the evaluation of adolescents who committed self-harm activities.

KEYWORDS: forensic science, self-harm, self-cutting, stranding, suicidal behavior, multidisciplinary approach

"A 'stranding' is an event when an individual or a group of marine mammals washes ashore dead or alive strands on a beach or in shallow water, unable to return to the water without assistance" (1). To date, it is not clear if the marine mammal "stranding" is the result of a purposeful or an accidental behavior. Natural (such as heart's magnetic field) and human activities (such as sonars) may represent its cause. However, it has also been suggested that the "stranding" may represent a sort of suicidal behavior (1). As per media reports, the marine mammal "stranding" was used by a Russian psychology student as a metaphor with which to create a peculiar "game," known as the "Blue Whale Challenge." The most part of the available information about this phenomenon has been reported by the media: The "Blue Whale Challenge" was born in Russia in 2013 on the "VKontakte" social network; the Russian creator of the "game" thought that people with "no value" should commit suicide in the same way as whales kill themselves by stranding; the challenge lasts for 50 days, and it consists of a series of tasks that a "curator" imposes on the "player" who must complete the list, usually performing one task per day; the "game" involves a series of life-threatening actions (such as self-cutting, protracted sleep deprivation, alienation by requiring the "player" to see horror movies early in the morning, and climbing buildings and cranes), and ends on the 50th day with the suicide of the "player," who must jump from the roof of the tallest building of the city; the "curator" usually sends to the victims via the Internet a link to a secret chat group which is a form of virus that reads and stores each minute detail of the connected smart phone. Because of the unreliability of the sources, it has not been ascertained the effective number of "players" and the suicides related to the "game." Despite the increasing attention of the media about this phenomenon, in the scientific literature, there is only one report of a "Blue Whale" case which needed a healthcare consultation (2). Indeed, Balhara and colleagues (2) described the actions of a boy who started to play the "game" after the download of an application on his mobile phone. In Italy, the first reports about the "Blue Whale Challenge" appeared in June 2016 in a national newspaper, with little resonance. However, in May 2017, a popular television program referenced the subject with reports that did not quote official sources and, since then, news on this phenomenon spread through social media like wildfire. The police began receiving many calls and newspapers published alarming articles. The authors of this study review the literature and report five cases of suspected participation in the "Blue Whale Challenge" that have been managed from 2016 to 2017 by the staff of the multidisciplinary unit (pediatricians, medical examiners, psychologists, psychiatrists, radiologists, specialized pediatric nurses and social workers) called the "Bambi Unit," at the Pediatric Hospital "Regina Margherita" (Turin, Italy). The unit specializes in the assessment of child abuse and evaluated 376 children during the same period (2016–2017). The most suggestive data have also been collated in a summary table (Table 1).

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*Presented at the 70th Annual Scientific Meeting of the American Academy of Forensic Sciences, 19–24 February 2018, Seattle, WA.

Received 10 May 2018; and in revised form 20 June 2018; accepted 7 July 2018.

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TABLE 1—*Summary of the cases.*

Case number	Age	Sex	Previous Self-harm	Current Self-harm	Psychological Issues	Psychiatric Disorder	Outcome
1	17 years	F	+	+ (self-cutting)	Perceiving oneself as a "burden"; lack in problem-solving skills; low self-esteem; social isolation; hopelessness; poor emotional regulation abilities; relationship problems	Depression	Hospitalization
2	14 years	F	0	+ (self-poisoning)	Perceiving oneself as a "burden"; low self-esteem; hopelessness; poor emotional regulation abilities; relationship problems	0	Sent home; psychological support program
3	14 years	F	+	+ (self-cutting)	Lack of belonging; low self-esteem; social isolation; relationship problems	0	Sent home; psychological support program
4	14 years	F	+	+ (self-cutting)	Lack in problem-solving skills; low self-esteem; social isolation; poor emotional regulation abilities; relationship problems	0	Sent home; psychological support program
5	14 years	F	0	0	Perfectionism; relationship problems	0	Sent home; psychological support program

F = female; + = present; 0 = absent.

Case Series

Case #1

The first patient was a 17-year-old Italian girl. Some of her classmates told the teachers that she was playing the "Blue Whale Challenge." The school contacted the police and the prosecutor who requested an evaluation of the girl by the "Bambi Unit." During physical examination, the pediatrician and medical examiner of the staff described multiple and parallel incised wounds on both forearms; there were also several incised wounds on the anterior surface of her left forearm positioned to resemble a whale (Fig. 1). Her past medical history was positive for self-cutting. When questioned by the psychologist, the girl said that she and two of her brothers were already under a social care program; they lived with their grandparents because their parents had divorced. According to the patient, the grandparents were loving but too elderly to be appropriate caretakers. She added that she visited her parents separately twice a month. The mother was described as affectless; for example, she never hugged her daughter during the visits, despite her crying. She reported that her father was supportive but, during the visits, they spoke very little and she spent most of the time watching horror movies with his partner. When she was interviewed about her participation to the "Blue Whale Challenge," she firmly denied to be a "player" of the "game." During the psychological assessment, the girl showed lack of problem-solving skills, low self-esteem, social isolation, hopelessness, relationship problems with her parents, perception of herself as a "burden," and poor emotional regulation abilities. The psychiatric evaluation concluded a major depressive disorder. The girl was hospitalized in the Neuropsychiatry Ward and discovered by the nurses cutting herself with a razor which she had hidden in her mobile phone case.

FIG. 1—*Incised wounds on the anterior surface of the first patient's left forearm positioned to resemble a whale.*

Case #2

The second patient was a 14-year-old Italian girl. She created a social network profile posting images of whales. She was contacted by a man who defined himself as the "curator," but the girl promptly deleted her profile. The girl was referred to the "Bambi Unit" because her father discovered the episode. During the physical examination, no lesions were described. Her father told the psychologist of the staff that he was certain that his daughter was playing such a "game" because of her difficulty accepting his separation from his wife. In fact, during that period, he had been living with friends rather than with his daughter and wife. He said that the girl had mistakenly taken alprazolam instead of her antihistamine a few days before, stealing the medicine from his wife, who was taking benzodiazepines because of depression. He also stated that his daughter was already under the supervision of a psychologist. During the psychological interview at the "Bambi Unit," the patient reported that her mother was depressed as her son (the brother of the patient) had died. She added that her father treated both of them as "stupid and mad." He frequently became angry about her school grades. The mother of the girl confirmed the aggressive habit of the husband and the reasons for her depression. The patient finally confessed that she had intentionally taken alprazolam because she

was afraid that her father would return home that night. When she was interviewed about her participation to the "Blue Whale Challenge," she firmly denied to be a "player" of the "game." During the psychological assessment, the girl showed low self-esteem, relationship problems with her parents, hopelessness, perception of herself as a "burden," and poor emotional regulation abilities. The psychiatric evaluation was negative for specific diseases. The girl was sent home with her mother, and a psychological support program was scheduled.

Case #3

The third patient was a 14-year-old Romanian girl. She posted the rules of the "Blue Whale Challenge" on a social network site and was seen cutting herself at school. For these reasons, she was referred to the "Bambi Unit." During the physical examination, the pediatrician and the medical examiner of the staff described multiple incised wounds on the anterior surface of the left forearm. Her past medical history was positive for self-cutting. The mother of the girl told the psychologist of the staff that she and her two children had recently moved to a new town because her husband maltreated them. When questioned by the psychologist, the girl confirmed the maltreatment behavior of her father. However, she added that she missed the life she used to have in the city where she grew up. She confirmed that she used to cut herself but she denied playing the "Blue Whale Challenge." In fact, she explained that she cut herself because that activity was the only one capable of relieving her anxiety. During the psychological assessment, the girl described relationship problems with her father and demonstrated low self-esteem, social isolation, and a lack of belonging. The psychiatric evaluation was negative for specific diseases. The girl was sent home, and a psychological support program was scheduled.

Case #4

The fourth patient was a 14-year-old Romanian girl. She confessed to a classmate that she was in the last week of the "Blue Whale Challenge." In fact, she showed him a chat in which she had talked with the "curator." The classmate told their teachers who contacted the police. For this reason, the girl was sent to the "Bambi Unit" for further evaluation. During the physical examination, the pediatrician and the medical examiner of the staff described two old linear scars on the anterior surface of the right forearm which the girl reported to be a result of incised wounds made 2 years before with a razor. The mother of the girl told the Staff psychologist of the staff that the family was already in a social care program because their lack of economic resources. When the girl was questioned by the psychologist, she reported feeling sad because all of her classmates ignored her. She added that she did not have any "true friends" and confessed that the chat shown to her classmate was in fact false; she had sent the messages from her brother's mobile phone to gain the attention of her class. Indeed, when she was interviewed about her participation to the "Blue Whale Challenge," she firmly denied to be a "player" of the "game." During the psychological assessment, the patient showed a lack in problem-solving skills, low self-esteem, social isolation, poor emotional regulation abilities, and relationship problems with her schoolmates. The psychiatric evaluation was negative for specific disorders. The girl was sent home, and a psychological support program was scheduled.

Case #5

The fifth patient was a 14-year-old Italian girl. She posted a photograph of a blue whale on a social network site, and her mother discovered chats in which she told her friends that she was a player of the "Blue Whale Challenge." For this reason, she was referred to the "Bambi Unit." During the physical examination conducted by a pediatrician and medical examiner, no lesions were described. When the girl was questioned by the psychologist of the staff, she said that she was only joking with her classmate because she was bored at school. In fact, she stated that her classmates were childish and envied her because she was the best student in the class. She denied having a "curator" and added that she had never cut herself. During the psychological assessment, the girl showed relationship problems with her schoolmates, and perfectionism. The psychiatric evaluation was negative for specific disorders. The girl was sent home, and a psychological support program was scheduled.

Note: in all five cases, the suspicion that the girls were playing the "Blue Whale Challenge" was not confirmed thanks to the correlation between the clinical findings and the investigation data. In fact, the investigators pointed out that the girls did not actually have a "curator."

Discussion

One of the most important aspects of the "Blue Whale Challenge" is that the "player" is instructed to commit a series of self-harm actions. The term self-harm is used to describe "all intentional acts of self-poisoning (such as overdoses) or self-injury (such as self-cutting), irrespective of degree of suicidal intent, or other types of motivation. Thus, it includes acts intended to result in death ("attempted suicide"), those without suicidal intent (e.g., to communicate distress, to temporarily reduce unpleasant feelings), and those with mixed motivation (3–6). With regard to young people, this behavior has been described as being more common in females, between 12 and 15 years of age (3,7). According to Patton and colleagues (8), this finding could be due to an increase in the prevalence of depression in young adolescent females. In addition, self-harming is more frequent in adolescents from lower socioeconomic groups (3,9). Despite the spread and potential danger of the phenomenon, only one in eight adolescents in the community who report self-harm activities ever present to hospital (3,10–12). Among young people who are visited in hospitals because of self-harm activities, the most common types of behavior are self-poisoning and self-cutting. It is important to note that self-harming is the strongest predictor of suicide among young people (13,14). From 40% (15) to 80% (16) of suicide victims had self-harmed in the past. In particular, longitudinal data indicate that self-cutting is a significant risk factor for completed suicide in children and adolescents (17). Considering the data from the literature mentioned above, it is clear that the "Blue Whale Challenge" leverages the same psychological mechanisms of the self-harm behavior. In fact, the "player" is urged to repeatedly cut himself and perform other dangerous tasks. This repetition represents a climax that adds day-by-day to an increase in the suicide risk. In fact, the repetition of self-harm and other dangerous tasks acts to reduce and normalize the feelings of fear with regard to these dangerous actions in the "player." In this way, the "player" is induced to plan his own suicide, which will be accepted and committed at the end of a self-destruction process.

The origin of self-harm in adolescents is considered the result of a combination of genetic, biological, psychiatric, psychosocial, social, and cultural elements (3,18). Depression, anxiety, ADHD, and eating disorders are commonly associated with self-harm (19). Psychological issues in adolescents can be represented by feelings of entrapment, a lack of belonging, and perceiving oneself as a "burden" (20). A lack of problem-solving skills, perfectionism, low self-esteem, social isolation, impulsivity, hopelessness, and poor parent–child attachment may influence these adolescents (18,21). Other important factors are poor emotional regulation abilities, relationship problems, especially with family members, and bullying (including cyberbullying) (13,22,23).

As per media reports, around the world many episodes of suspected participation in the "Blue Whale Challenge" have been shown to be emulative cases, in which a real "curator" was not identified. Nevertheless, the absence of a "curator," as in our case series, does not nullify the intrinsic dangerousness of the emulative cases. In particular, the danger lies in the combination of two elements. The first is that "self-harm in adolescence often has a 'contagious' quality, and exposure to self-harm (and suicide) in friends and family members can be a strong influence" (3,10,24,25). Nowadays this "contagiousness" is amplified, as in the case of the "Blue Whale Challenge," by social media. Kate Daine and colleagues (26) studied the "power of the web" with regard to self-harm and suicide risk. In particular, they stated that the "Internet appears to have potential to exert both a positive and a negative influence on vulnerable young people; the Internet may normalize self-harm and provide access to suicide content and violent imagery" (26). The second dangerous element lies in the greater vulnerability of some adolescents compared to others. In fact, both the real "Blue Whale Challenge" and the emulative cases (without a "curator") may take root in teenagers who are already prone to self-harm and suicide because they have particular epidemiological, psychological, psychiatric, social, and cultural characteristics.

In the light of the two elements mentioned above, the only case of "Blue Whale" described in the literature by Balhara and colleagues (2) confirms the "contagious" quality of the Internet. Indeed, the boy was exposed to self-harm content by "getting a link in his social media application account. He clicked the link that resulted in an application getting installed on mobile phone." Then, he was urged to fulfill a series of tasks such as clap twice and say "I am very strong," carve "F15" on his forearm, stand in balcony for hours, carve a picture of blue whale on himself, and listen to a tune played through the application. He failed to continue the "game" because his father saw the application on the son's phone. However, it is interesting to note that the boy of this case had not the typical risk factors for self-harm behavior mentioned in the literature: He was male; he did not commit self-harm activities in the past; he was not reported by the father or the school for any "unusual" behavior; in addition, no psychiatric diagnosis was made after a specialized assessment. The boy referred that curiosity was the reason for carrying out the tasks (2). On the other hand, the five cases described in the present study (Table 1) confirm both the "contagious" quality of the Internet and the importance of epidemiological, psychological, psychiatric, social, and cultural risk factors for self-harm behavior. In fact, considering the epidemiological characteristics, the five patients referred to the "Bambi Unit" had a higher risk of self-harm because they were female with a mean age of 14.6 years. In accordance with the literature (3), they participated in self-harm by cutting or poisoning themselves. In addition, four of the girls had already committed self-harm in the past. With regard to the psychiatric and psychological issues, only the first patient was affected by a psychiatric disorder (depression), but all showed relationship problems (the first three patients with their parents and the last two with schoolmates) (Table 1). Another important aspect used to understand the behavior of the first four patients was the feeling of low self-esteem. In addition, in the first two cases, the girls also showed hopelessness and perceived themselves as a "burden" (Table 1). Moreover, the first, third, and fourth girls also had social issues because they were adolescents of lower socioeconomic groups and had experienced social isolation (Table 1). In particular, the fourth girl was poorly integrated into society because she was foreign. In addition, it is important to note that there was a lack of problem-solving skills and poor emotional regulation abilities in some of these patients (Table 1).

Therefore, as stated above, there were significant factors that determined a higher risk of self-harm in all cases of our series. At the same time, these vulnerable girls were exposed to the self-harm rules of the "Blue Whale Challenge" through the negative influence of traditional and social media. The combination of these two elements led the five girls committing self-harm, emulating the participation in this life-threatening "game," in order to communicate distress or temporarily reduce unpleasant feelings. In fact, at the end of the multidisciplinary evaluation, the absence of a real suicidal intent was assessed in all cases. However, as mentioned above, self-harm is the strongest predictor of suicide among young people (13–16), and adolescents who self-harm report that it is difficult to talk about their suicidal feelings and that they do not really feel "listened to" when they do communicate on this topic. Indeed, clinical staff have been reported to have a negative attitude toward self-harm behaviors and may not possess the ability to deal effectively with them (27). For these reasons, it is crucial that frontline medical staff receives training on self-harm and suicidal behaviors to increase clinical effectiveness. It was demonstrated that even short-term training can improve staff attitudes (28). For these reasons, the authors of the present manuscript suggest a multidisciplinary and specialized approach in cases of suspected self-harming adolescents who come to the hospital: Different specialists (such as psychiatrists, psychologists, pediatricians, medical examiners, specialized pediatric nurses, and social workers) should work together to achieve the best results. Nevertheless, it is important to note that "of particular concern regarding after-care of adolescents who engage self-harm and who present to the hospital is the fact that adherence to recommended treatment tends to be relatively poor; between 25% and 50% of adolescents will not attend any follow-up sessions" (3,29,30). For this reason, it would also be useful to plan strategies capable of increasing the therapeutic compliance of patients, even when they are outside of the hospital.

Conclusion

In conclusion, the current study highlights the need for in-depth knowledge of self-harm risk factors for all operators who work in the healthcare field. In particular, the authors underline the danger of the combination of risk factors for self-harm and the exposure to traditional and social media contents in vulnerable adolescents. In fact, a "contagious" quality has been demonstrated by the "Blue Whale Challenge" spreading. Moreover, the

authors suggest a multidisciplinary and specialized approach in the evaluation of adolescents who committed self-harm activities.

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